had little effect on the size of the spores or hyphae; and that ammonium nitrate can be used to a limited extent as a source of nitrogen, but that it is rather poorer than ammonium tartrate.—F. L. STEVENS.

The vegetative activity of chromatin.—DERSCHAU'S[12] results and theoretical views on the vegetative activity of chromatin are interesting. Many granular chromatin substances thrown out of the nucleus into the cytoplasm increase in size, assume spherical forms, and then, becoming oriented at the poles of spindle figure, function as centrosomes. This is regarded as the vegetative activity of the chromatin. His studies cover several forms of higher vascular plants, such as *Fritillaria imperialis*, *Iris germanica*, *Vicia Faba*, *Lilium Martagon*, *Funkia sieboldiana*, and *Osmunda regalis*. From his investigation of the pollen mother cell and meristematic tissue of these forms, he concludes that there exist central bodies in the mitotic figure of the fern and flowering plants which are of nuclear origin and are analogous to blepharophlasts.

The following is a brief summary of his account. In very young mother cells of Lilium, Funkia, and Osmunda, chromatin is observed escaping from the nucleus in various spots. Outside the nucleus the chromatin substances increase in size and assume spherical forms. The spherical chromatin substances refract light and close examination of them seems to show a reticulated structure. With stains they react like chromatin and linin. While the chromatin is escaping the nucleolus remains within, which shows that the substances thrown out are not nucleolar. In late prophase the spherical chromatin or "Sphaere" seems loosened and differentiated into two structures, one the center and the other a single heavy beaded fiber. Some of these centers make their way toward the *Hautschicht* during a later phase of mitosis and furnish the anchoring-place for the spindle; some lie scattered in the cytoplasm; and still others remain near the nuclear periphery. To each of these centers there is attached a single heavy beaded fiber, from which there seem to be spun out fine spindle fibers. Generally the spindle figures start as multipolar polyarch, then become bipolar, but remain in the polyarch condition until telophase; and therefore several centers persist without fusion at each pole, each spindle cone being associated with a single center. In rare cases some of these centers fuse together to form a kinoplasmic plate, which is connected by beaded heavy fibers with other centers that remain separate. In telophase the central and mantle spindles again take on a beaded structure. The centers and fibers, instead of entering into the constitution of the organizing daughter nucleus, remain in the cytoplasm and undergo certain changes in the structure. These centers at the pole of the spindle, DERSCHAU thinks, control the mechanism of mitosis. He states further that the centers may be structures allied to the blepharophlast, and are to be regarded as analogous with it, if not homologous; both lie near the nucleus, increase in volume, and mark the starting-point of fibers—one of cilia and the other of spindle fibers.—SHIGÉO YAMANOUCHI.

[12] DERSCHAU, M. v., Beiträge zur pflanzlichen Mitose, Centren, Blepharophlasten. Jahrb. Wiss. Bot. 46:103–118. *pl. 6.* 1908.